

2.1 Use Inductive Reasoning

Conjecture-unproven statement that is based on observations

Inductive reasoning-reasoning using a # of examples to make a prediction

Oct 1-7:06 AM

Oct 1-7:09 AM

Patterns:

Ex 1: $1, 3, 6, 10, 15, \underline{21}$

Ex 2: A, B, B, C, C, C, D, D, D, D, E, E, E, E, E

Ex 3: $1 \times 9 + 2 = 11$
 $12 \times 9 + 3 = 111$
 $123 \times 9 + 4 = 1111$
 $1234 \times 9 + 5 = 11,111$

Ex 4: 3, 5, 7, 9

Ex 5:



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Make a conjecture based on the given information.

Ex 6: ABCD is a square



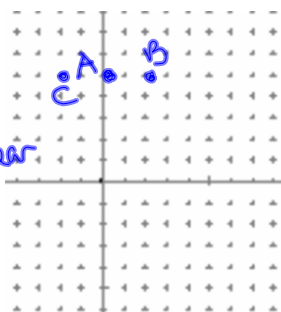
$$AB = BC = CD = DA$$

$$m\angle BAD = 90$$

Ex 7: A(0,5) B(2, 5) C(-2, 5)

A is midpt of \overline{CB}

A, B, + C are collinear



Counterexample-one false example that shows a conjecture is not true

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Determine whether each conjecture is true or false. Give a counterexample for any false conjecture.

8. Given: x is an integer.

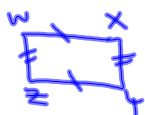
Conjecture: $-x$ is negative.

False $x = -8$

9. Given: WXYZ is a rectangle.

Conjecture: $WX = YZ$ and $WZ = XY$

True



Make a conjecture about the next item in each sequence.



5. $-8, -5, -2, 1, 4$

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Oct 1-7:15 AM

Make a conjecture about the next item in each sequence.

11.

2×2
 1×2 2×3 3×3 3×4

13. 1, 2, 4, 8, 16

32

15. $\frac{1}{3}, 1, \frac{5}{3}, \frac{7}{3}, 3$

$\frac{11}{3}$

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Determine whether each conjecture is *true* or *false*. Give a counterexample for any false conjecture.

29. Given: $\angle 1$ and $\angle 2$ are complementary angles.
Conjecture: $\angle 1$ and $\angle 2$ form a right angle.

F

Oct 1-7:17 AM

Venn Diagrams

Venn Diagrams
^-- And (intersection)
v-- Or (union)
~ not

$p \wedge q$ $p \vee q$ $\sim p \wedge q$ $\sim p \vee q$

Jun 20-10:49 AM

Use the Venn diagram to answer the following questions.

Jack surveyed the students in his science class to find out what movies they preferred.

1. 29 How many students were surveyed?

2. 13 How many students preferred Action? $9 + 4$

3. 4 How many students preferred Action and Comedy?

4. 14 How many students did not prefer comedy? $9 + 5$

Jun 20-10:52 AM

Use the following Venn diagram about dance classes to answer the questions.

1. 9 How many students are in tap, jazz, and ballet?

2. 121 How many are in tap or ballet?
 $28 + 13 + 17 + 9 + 25 + 29$

3. 25 How many are in jazz and ballet and not tap?

4. 34 How many are in jazz and ballet?
 $9 + 25$

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HW

Use the following Venn diagram about dessert preferences to answer the questions.

1. _____ How many people were surveyed?

2. _____ How many people preferred cookies?

3. _____ How many people preferred cookies and cake?

4. _____ How many people did not prefer ice cream?

5. _____ How many people preferred cake or ice cream?

6. _____ How many people preferred cookies and cake and ice cream?

Jun 20-10:53 AM

Homework

p75-78

#s 5-17,

30, 32, 37

+ Dessert Venn Diagram

Oct 1-7:19 AM